REMARKS

These remarks are in reply to the Office Action mailed October 19, 2005 in the above-identified patent application.

Summary of the Amendment

Upon entry of the amendment, Claims 1, 8, and 10, will have been amended. Claim 7 will have been cancelled. Further, new Claims 11-20 will have been presented for consideration. Therefore, Claims 1-6 and 8-20 currently remain pending.

Summary of the Office Action

Claims 1-3, 5-7, and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DE 19757704 (hereinafter "DE") in view of either U.S. Patent No. 3,257,835 issued to Cofer et al. (hereinafter "COFER") or U.S. Patent No. 5,182,074 issued to Yoshioka et al. (hereinafter "YOSHIOKA"). In addition, Claims 4, 8, and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DE in view of either COFER or YOSHIOKA and further in view of U.S. Patent No. 5,094,678 issued to Kramer et al. (hereinafter "KRAMER").

Traversal of Rejection of Claims 1-3, 5-7, and 9 Under 35 U.S.C. 103(a)

Applicant traverses the rejection of Claims 1-3, 5-7 and 9 under 35 U.S.C. §103(a). In the Office Action, the Examiner stated that "DE '704 teaches the claimed metal strip continuous casting plant, comprising two counter-rotating rolls and inclined strip temperature regulation device 18 below the rolls comprising two temperature regulating panels 18 each panel including three gas conduits and a plurality of novel headers for spraying gas towards the strip 8." *See* Office Action.

The Examiner also indicated that DE fails to teach the use of uniform temperature control. Finally, the Examiner then argued that COFER or YOSHIOKA teach the use of uniform temperature control. In particular, the Examiner stated that COFER includes "a thermal couple for the purpose of controlling uniform temperature of the strip (casting bar 16) along its length in a strip temperature regulation device (metal bar furnace 11) having refractory lining for insulating and protecting the temperature regulation device (metal bar

furnace 11) from heat attack." The Examiner also stated that YOSHIOKA includes a "thermometer for the purpose of controlling uniform temperature of the steel strip along its length in a strip temperature regulation device (gas cooler panels 3)."

Thus, the Examiner argues that it would have been obvious to one of skill in the art to combine the DE invention with the teachings of either COFER or YOSHIOKA to "effectively control uniform temperature of casting along its length in a strip temperature regulation device."

A. *Review of DE, COFER, and YOSHIOKA and KRAMER*

In traversing the rejection of Claims 1-3, 5-7, and 9 under 35 U.S.C. §103(a), Applicant provides a review of the references cited in the Office Action, as well a review of aspects of the Applicant's invention, for the Examiner's convenience.

1. *Review of DE*

As understood, DE is directed to a method of continuous casting thin metal strips. In practice, two internally cooled rolls rotate in counter directions to produce a thin metal strip of metal therebetween utilizing molten metal. The thin metal strip produced apparently vibrates, and a pneumatic means is used along the length of the strip to dampen the vibrations. *See* DE, Abstract.

2. *Review of COFER*

As understood, COFER is directed to a method of hot forming metal. In particular, COFER teaches a method of "hot forming metal by which oxide coatings on the metal are eliminated and their formation precluded continuously and by which the temperature of the metal may be selectively controlled." COFER, col. 1, lines 9-14. The main problem that COFER appears to address is eliminating oxides so that they do not become embedded into the metal during hot forming. *See id.* at col. 1, lines 24-35.

In order to prevent the formation of oxide and to remove any oxide coating on a bar, the COFER apparatus passes the bar through controlled environments which are specifically regulated to be reducing environments. *See id.* at cols. 3-4. In particular, the bar passes

through an inert or reducing environment created in the receiving member 10, the temperature regulating furnace 11, and then passes to be hot formed in the rolling mill 12, thus being hot formed and rolled into rod without exposure to an oxidizing atmosphere and without any formation of an oxide coating on the metal bar. *See id.* In order to create the reducing environment within the apparatus, an oxygen starved mixture of air and natural gas is combusted. As a result, additional oxygen necessary to complete the combustion reaction is supplied by any oxide located on the surface of the metal. As one of the byproducts of the combustion process, heat is supplied to the metal bar. If the temperature of the metal bar is above a pre-determined temperature, the furnace supplies cooled gases to cool the bar and reduce any oxide coating that may be present on the metal bar. *See id.,* col. lines 52-62.

Should any flash material be present on the corners of the metal bar, the COFER apparatus utilizes a series of flame scarfers 131 shaped as nozzles 132 to produce a "jet of flame from the nozzle [that] is directed against the corners of the metal bar" to burn the flash metal away. *See id.,* col. 6, lines 70-75 - col. 7, lines 1-7.

Finally, at the end of the process, coolant is deposited onto the rod and blown off of the rod in an air wipe block 116 by a plurality of angularly disposed ports 118 in communication with a plurality of air supply tubes 120. *See id.* At col. 8, lines 53-72. Thus, the liquid coolant is removed from the rod using the air blast from the ports 118. *See id.* col. 10, lines 16-20.

3. Review of YOSHIOKA

As understood, YOSHIOKA is directed to an apparatus for continuously cooling a metal strip in order to allow the strip to continuously travel in the longitudinal direction thereof by means of at least one cooling roll. *See* YOSHIOKA, Abstract. Further, the YOSHIOKA apparatus also includes a gas cooler that comprises a plurality of independent nozzle headers that blow cooled gas onto the surface of the metal strip. *See id.* at col. 8, lines 13-22. The apparatus also includes a thermometer that continuously measures the temperature distribution in the metal strip and utilizing a comparator, calculates any temperature variance in the strip. In response to any detected difference, the comparator

changes the flow velocity of the cooling gas distributed through the nozzle headers, so that the difference in temperature becomes null. *See id.* at col. 8, lines 40-61.

4. Review of KRAMER

As understood, KRAMER teaches a high-convection gas jet nozzle suction for a sheet-like material guided over rollers in particular for the thermal tempering of thin flat glass sheets. See KRAMER, Abstract. KRAMER appears to teach an apparatus that provides a very even distribution of compressed gas. This even distribution provides a symmetry to the gas action on the material both above the material and below the material. *See id.* In order to accomplish this symmetry, KRAMER utilizes nozzle apertures of varying diameters, which are tilted and positioned differently according to the size of the nozzle aperture. *See id.* at cols. 5-6. Thus, by altering the nozzle aperture diameter and the positioning and tilting of the nozzles, KRAMER seeks to create an even distribution of gas above and below the glass material.

5. Review of Aspects of the Present Invention

According to an embodiment of the present invention, a metal strip continuous casting plant is provided that includes an ingot mould and strip temperature regulation device. The strip temperature regulation device includes a pair of parallel counter-rotating rolls and two closing planes at the end of the rolls, which define a vertical casting plane for the metal strip. The strip temperature regulation device includes a substantially rectangular panel that is placed below the plane of the axis of the rolls with its longest dimension being substantially parallel to the axis of the rolls. The strip temperature regulation device also includes at least one conduit for passing cooling gas. The rectangular panel is placed below the rolls at a short distance from the rolls in order to maintain the zone immediately below the exit of the ingot mould between the rolls at a uniform temperature along its length. Further, at least one panel is made of refractory material and is inclined at a predetermined angle of a value different from zero with respect to the vertical strip casting plane.

B. *The Combination of DE in View of COFER or YOSHIOKA is Improper and Fails to Teach the Invention of Claim 1*

In the Office Action, the Examiner contended that it would have been obvious to one of skill in the art to "provide DE '704 the use of uniform temperature control as taught by either COFER et al. or YOSHIOKA et al. in order to effectively control uniform temperature of the casting along its length in a strip temperature regulation device." However, Applicant respectfully submits that as amended, Claim 1 would not be obvious to one of skill in the art, and that the references provided by the Examiner do not teach, suggest, or disclose the embodiments of the invention as provided in Claim 1.

As amended, Claim 1 provides for a strip temperature regulation device with at least one substantially rectangular panel being *placed below the rolls of the ingot mould* and wherein the panel is placed *a short distance from the rolls that the temperature of the strip, in the zone immediately upon exit from the ingot mould, is* ***maintained uniform*** *along its length.* Further, Claim 1 also recites that the panel is *inclined at a predetermined angle of a value different from zero.*

Applicant respectfully submits that none of DE, COFER, or YOSHIOKA provide any motivation to combine the respective invention disclosed therein to result in the continuous casting plant of embodiments of the Applicant's invention. Further, the proposed combinations is improper because it would require that COFER and YOSHIOKA would be rendered unsatisfactory for their intended purpose.

1. *The Combination of DE in view of COFER or YOSHIOKA is improper*

Applicant respectfully submits that the combination of DE in view of COFER or YOSHIOKA is improper because none of these references provide a motivation to combine teachings or a motivation to combine respective invention disclosed therein. As discussed below, these references are completely devoid of any teaching or suggestion to combine a strip temperature regulation device to below counter rotating rolls of an ingot mould. Further, none of these references teach that the strip immediately downstream from the ingot mould should be maintained at a uniform temperature in order to eliminate the risk of breakage and to prevent excessive temporary reheating of the strip due to the "reheating

phenomena." Furthermore, the proposed combination is improper because it destroys the function and principle of operation of COFER and YOSHIOKA. Therefore, Applicant respectfully submits that the proposed combination is a result of impermissible hindsight.

a. *Neither* DE, COFER, *nor* YOSHIOKA *provide any teaching or motivation to combine*

Applicant respectfully submits that DE, COFER nor YOSHIOKA provide any teaching or motivation to combine the teachings found therein to result in a continuous casting plant having a strip temperature regulation device positioned below rolls in order to maintain the strip temperature uniform as the strip exits the ingot mould.

As reviewed above, DE teaches a metal strip continuous casting plant having two counter rotating rolls and an incline strip temperature regulation device below the rolls. The DE temperature regulation device includes two temperature regulation panels that direct gas towards the strip through a plurality of nozzle headers. However, DE does not apparently teach that the gas should be directed toward the strip in such a way as to maintain the temperature along the strip uniform. Furthermore, the figure in DE apparently illustrates that the gas is sprayed toward the strip at a distance far below the ingot mould. *See DE, Figure 1.* It thus appears that DE teaches that the strip should be cooled, but does not teach or apparently disclose that *the temperature of the strip in the zone immediately upon exit from the ingot mould* ***be maintained uniform.***

Applicant further respectfully submits that COFER also fails to provide any motivation to *maintain the temperature of the strip uniform in the zone immediately upon exit from the ingot mould.* As described above, COFER teaches a method of hot forming metal, and in particular, a method of maintaining a rod of metal free from oxidation by maintaining the rod in a reducing environment. The rod first passes through a receiving member 10, which is provided with an inert or reducing environment through a valve 45. See col. 4, lines 45-59. However, this does not teach or suggest the cooling of a continuous strip as it exits from an ingot mould, as taught in embodiments of the Applicant's invention.

Additionally, gas is combusted in the temperature regulating furnace 11, which seeks to maintain the metal bar 16 at a uniform temperature as it enters the rolling mill. *See*

COFER, col. 4, lines 60-75 – col. 5, lines 1-30. As indicated therein, the metal bar may either be either heated or cooled in the temperature regulating furnace in order to keep the temperature of the bar uniform or constant. *See id.* First, such teaching is structurally distinct from and does not equate to placing a temperature regulation device *in the zone immediately upon exit from the ingot mould* to *maintain the temperature of the strip uniform*. Furthermore, COFER does not teach that temperature regulation would be important for any other purpose other than to prevent oxidation—and therefore, there is no motivation to modify the COFER structure as suggested or to combine the COFER structure with DE.

It is also possible that the Examiner consider the air-wipe block 116 of COFER to teach or suggest the temperature regulating device of embodiments of the Applicant's invention. As indicated in COFER, as the metal bar 16 has been hot formed and preserved from any oxide coatings, the bar then passes through a cooling tube 99. *See* COFER, col. 8, lines 33-52. In the cooling tube 99, coolant passes over the metal rod to cool the rod to below its minimum oxidation temperature. *See id.*, col. 10, lines 6-20. After the rod leaves the cooling tube 99, the rod extends past the air-wipe block 116 wherein "the air blast from the ports 118 removes any of the coolant remaining on the rod 86. The rod is then ready for subsequent coiling or drawing operations without danger of oxidation." *See id.* Apparently then, the air-wipe block is used to blow coolant off of the rod and into the catch basin 100. *See id.,* col. 8, lines 53-72.

While COFER thus appears to disclose the use of blowing gases toward a hot metal rod, Applicant respectfully submits that this teaching is structurally distinct from aspects of Applicant's invention and also fails to suggest or disclose *maintaining the temperature of the strip uniform in the zone immediately upon exit from the ingot mould*, as disclosed in embodiments of the Applicant's invention. In particular, Applicant notes that COFER does not suggest or teach that its teachings may be or should be employed in connection with continuous casting from an ingot mould. Nor does COFER suggest that any of its cooling mechanisms may be operably positioned in relation to the strip as it exits the ingot mould.

Applicant further respectfully submits that YOSHIOKA also fails to teach or suggest using a temperature regulation device *in the zone immediately upon exit from the ingot mould* to *maintain the temperature of the strip uniform*. In particular, Applicant first notes that

YOSHIOKA teaches that "an object of the present invention is therefore to provide, when continuously cooling a metal strip continuously *traveling in the longitudinal direction thereof by means of at least one cooling roll*, an apparatus for continuously cooling a metal strip, which permits *prevention of the occurrence of a defective shape such as edge waves or heat buckles in the metal strip* . . . through achievement of a uniform temperature distribution in the width direction of the metal strip." *See* YOSHIOKA col. 4, lines 19-32. Thus, as understood, YOSHIOKA teaches that its invention is used with at least one cooling roll and that the strip thus travels in the longitudinal direction. YOSHIOKA also appears to be directed at preventing edge waves and heat buckles, ***not*** preventing breakage of the strip or excessive reheating as it exits the ingot mould. YOSHIOKA does not teach that such cooling may take place in a vertical direction, and much less, as the strip exits the ingot mould. In addition, YOSHIOKA is apparently devoid of any teaching that such cooling should be uniform in order to prevent breakage of the strip or to prevent excessive temporary reheating of the strip.

Furthermore, while YOSHIOKA teaches the uniform cooling of a continuous strip, as mentioned above, YOSHIOKA does not teach that such uniform cooling should be combined with an ingot mould continuous casting plant. In particular, YOSHIOKA does not appear to be directed to solving the same problem as discussed in the Applicant's application. Instead, YOSHIOKA appears to be primarily concerned with reducing edge waves, heat buckles, and other problems that occur when the metal strip travels in the longitudinal direction across cooling rolls. Applicant respectfully submits that this problem and solution are distinct and separate from the problem and solution proposed by the Applicant in the Applicant's application. For this reason, and because YOSHIOKA fails to suggest that uniform temperature regulation may be used immediately below the rolls as the strip exits the ingot mould, Applicant submits that YOSHIOKA fails to provide any teaching or motivation to combine its teachings with those of DE.

Therefore, because none of DE, COFER, or YOSHIOKA teach, suggest, or disclose any motivation to combine the references as suggested by the Examiner, such combination is improper.

b. *The Proposed Combination is Improper Because It Destroys the Function and Principle Operation of* COFER *and* YOSHIOKA

The proposed combination is also improper because it would destroy the function and principle of operation of both COFER and YOSHIOKA.

First, as described above, the COFER device is apparently directed to blowing coolant away from the rod and into a catch basin. As described above, COFER teaches that a gas may be used in the method of hot forming metal. The first instance is in the receiving member 10 in order to maintain an inert environment. Gas may also be combusted in the temperature regulating furnace 11, which seeks to maintain the metal bar 16 at a uniform temperature as it enters the rolling mill. *See* COFER, col. 4, lines 60-75 – col. 5, lines 1-30. As indicated therein, the metal bar may either be either heated or cooled in the temperature regulating furnace in order to keep the temperature of the bar uniform or constant. *See id.* Additionally, air is used in the air-wipe block to blow coolant from off of the rod after the rod leaves the rolling mill. *See id.* at col. 8. Thus, as understood, the use of gas and temperature regulation devices are taught to be used for preparing the rod for hot working in the rolling mill, and for maintaining the rod free of oxidation.

In contrast, embodiments of the Applicant's invention teach that the temperature regulating device is used below the ingot mould as metal exits and forms the strip, in order to maintain the strip at a uniform temperature to prevent breakage due to the weight of the strip on itself as well as to prevent excessive reheating of the strip. Thus, if the teachings of COFER were applied today, as suggested by the Examiner, the basic structure and application of the COFER temperature regulating device would be need to be altered. Instead of maintaining the strip or bar at a uniform temperature prior to being hot worked, the temperature regulating device would need to be placed immediately below the ingot mould to maintain the strip as it exits from the ingot mould at a uniform temperature. This is a significant deviation from the teachings in COFER, and would render COFER unsatisfactory for its intended purpose. Additionally, COFER is also utilized to blow coolant from off of the bar. Thus, if the teachings of COFER were applied today as suggested, the device would

not be utilized to blow coolant from off of the bar, but would instead be used to direct gas toward the strip for uniformly regulating the temperature of the strip.

Thus, Applicant respectfully submits that combining the teachings of COFER with DE would be improper because the principle of operation and the teachings of COFER would be destroyed and rendered unsatisfactory for their intended purposes.

Additionally, Applicant also submits that combining DE with YOSHIOKA would destroy the principle of operation and teachings of YOSHIOKA. In particular, Applicant notes that YOSHIOKA is directed to an apparatus that continuously cools a metal strip as the strip travels in the longitudinal direction by means of at least one cooling roll. As understood, the strip in YOSHIOKA is continuously cooled "by blowing a cooling gas onto the surface of the steel strip 1 so as to achieve a uniform temperature distribution in the width direction of the steel strip 1 ***after the final cooling thereof***." *See* YOSHIOKA, col. 7, lines 55-60. Apparently, the "final cooling thereof" takes place prior to the strip entering the gas cooler 3. As understood from YOSHIOKA, the steel strip must pass over or under at least one cooling roll and pass through the preliminary cooling zone 25 ***prior to*** entering the gas cooler 3. *See* Figures 2, 3, 9, 14, 15, 18, 21, 24, 28, 29, 32, 35-36, 39a and 39b. Thus, the YOSHIOKA apparatus utilizes the gas cooler 3 to provide a uniform temperature distribution on the strip ***after*** the strip has already been substantially cooled by the cooling rolls and the preliminary gas cooling zone 25. As shown in Figure 14, YOSHIOKA apparently teaches that the strip passes through the preliminary gas cooing zone 25 prior to passing over a variety of rollers and entering the gas cooler 3 where the temperature of the strip is sought to be uniform. *See id.* at col. 13, lines 18-33. In fact, "the steel strip 1 continuously traveling in the longitudinal direction thereof, which has been slowly cooled to a prescribed temperature in a preliminary gas cooling zone 25." *See id.* Thus, the preliminary gas cooling zone 25 is utilized to merely lower the temperature of the strip to a prescribed temperature, and not to achieve a uniform temperature distribution in the width direction of the strip, which occurs later in the gas cooler 3.

Therefore, Applicant respectfully submits that combining YOSHIOKA with DE would obviate the use of the preliminary gas cooling zone 25 and destroy the function of the gas cooler 3, which is to obtain a uniform temperature distribution along the width of the

strip after the strip has been cooled to a prescribed temperature and passed over a series of rollers. While YOSHIOKA teaches that the strip may reach a uniform temperature distribution, this uniform temperature distribution is taught to be obtained only after the strip has cooled to a prescribed temperature. In contrast, the embodiments of the Applicant's invention teach that immediately after the strip has passed from the ingot mould to below the rolls, the temperature of the strip should be maintained uniform along its length, thus preventing the strip from being broken or having excessive reheating. The combination of YOSHIOKA with DE would require that the structure of the YOSHIOKA apparatus be changed to eliminate the preliminary gas cooling zone 25 and to modify and move the gas cooler 3, which is not taught nor suggested by YOSHIOKA. Therefore, Applicant respectfully submits that the combination of DE with YOSHIOKA would yield YOSHIOKA unsatisfactory for its intended purpose.

c. *Applicant's Disclosure May Not Be Used as a Template for a Rejection*

It is apparent that the Examiner has used unacceptable hindsight reconstruction to generate the aforementioned 35 U.S.C. §103(a) rejection over DE in view of COFER or YOSHIOKA.

Applicant notes that the Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. *See* In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1533, 220 USPQ 303, 312-313 (Fed. Cir. 1983), cert denied, 469 U.S. 851 (1984):

> [t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which the inventor taught is used against it teacher.

See also In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) ("The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, not in the Applicant's disclosure"); In re Dow Chemical Co., 837

F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) ("The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure").

Therefore, Applicant respectfully submits that the rejection under Section 103(a) is the result of impermissible hindsight. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). As discussed in detail above, none of the subject references provide a motivation to be combined to create a device that allows simultaneous infusion through at least three outlets or infiltration cannulae. In particular, none of the subject references were facing the same problem, and none of the references indicate that such a combination as described by the Examiner would be effective in addressing their respective problems. In re Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998) ("In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.").

d. The Proposed Combination is Improper

As discussed, Applicant respectfully submits that the above-mentioned references are completely devoid of any teaching or suggestion to combine the continuous casting method of DE with a strip temperature regulation device in order to provide a uniform temperature distribution of the strip in the zone immediately upon exit of the strip from the ingot mould. Further, the proposed combination is improper because it destroys the function and principle of operation of COFER and YOSHIOKA. Therefore, Applicant respectfully submits that the proposed combination is a result of impermissible hindsight. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of Claim 1 under 35 U.S.C. §103(a) and indicate that this claim is allowable over the art of record. Furthermore, Applicant respectfully request that Claims 2-6 and 8-10 be indicated as

allowable at least for the reason that these claims depend from an allowable base claim, Claim 1.

C. *Traversal of Rejection over DE in view of COFER or YOSHIOKA and in Further View of KRAMER*

Applicant respectfully traverses the rejection of Claims 4, 8, and 10 under 35 U.S.C. §103(a) as being unpatentable over DE in view of either COFER or YOSHIOKA and in further view of KRAMER.

Applicant reiterates the remarks made above with respect to the base combination of DE, COFER, and YOSHIOKA. Applicant reiterates that such combination is improper for the above-mentioned reasons.

Furthermore, Applicant submits that the combination of KRAMER with the above-mentioned references fails to teach embodiments of the Applicant's invention, and in particular, further fails to teach embodiments of the Applicant's invention that utilized means for varying the inclination of the panel with respect to the vertical strip casting plane, as taught in Claims 4, 8 and 10.

1. *The Combination of DE in View of COFER or YOSHIOKA and in Further View of KRAMER is improper*

Applicant respectfully submits and reiterates the comments made above with respect to the combination of DE in view of COFER or YOSHIOKA. Further, Applicant submits that the additional combination of KRAMER is improper because KRAMER also fails to provide any motivation to combine its teachings with those of the above-mentioned references.

As indicated above, KRAMER is directed to a high-convection gas jet nozzle section for sheet-like material that is ***guided over rollers***. See KRAMER, Abstract. As understood from the disclosure in KRAMER, the gas jet nozzle section is taught only to cool horizontally disposed flat glass sheets. Figures 1 and 3-4 illustrate that the general configuration of the gas jet nozzle section provides for horizontal passage of the sheet-like material. Further, the nozzle ribs 2a and 3b of the respective ones of the lower and upper nozzle fields 2, 3 of the nozzle section are taught to be arranged to be perpendicular, i.e.,

vertical, with respect to the horizontally traveling sheet-like material. KRAMER indicates that these nozzle ribs 2a, 3b should be aligned vertically with a vertical axis. *See id.* at Claim 1 and col. 4, lines 55-69. However, KRAMER does not teach that the gas jet nozzle section may be utilized for vertically traveling material, as taught in embodiments of the Applicant's invention. Furthermore, KRAMER does not teach that the upper and lower nozzle fields 2, 3 may be rearranged from their horizontal position to a vertical position. Finally, KRAMER does not teach that the upper and lower nozzle fields may be positioned on either side of a strip to maintain the strip temperature uniform across its width as the strip exits from an ingot mould.

Therefore, even assuming arguendo that the base combination of DE in view of COFER or YOSHIOKA was proper, Applicant respectfully submits that KRAMER provides no motivation to combine its teachings with those found in the other references. Further, the other references provide no motivation to combine their teachings with those of KRAMER to teach the use of a pivoting joint as taught in Applicant's Claims 4, 8 and 10.

2. *The Proposed Combination is Improper Because it Destroys the Function and Principle of Operation of KRAMER*

The proposed combination is also improper because it would destroy the function and principle operation of KRAMER.

As understood, KRAMER teaches a gas jet nozzle section that is to be utilized for sheet-like material that is guided over rollers. As indicated above, the horizontal travel of the sheet-like material requires that the nozzle sections 2, 3 likewise be positioned parallel to the path of travel, thus requiring the nozzle sections 2, 3 to be symmetrically positioned horizontal with respect to the sheet-like material. Further, KRAMER teaches that the nozzle sections 2, 3 may pivot up or down about a pivot joint 15. However, combining the KRAMER reference with the above-mentioned references would require that the nozzle sections 2, 3 of the KRAMER reference be positioned vertically with respect to the horizontally traveling sheet-like material. This modification would apparently render the use of the gas jet nozzle section of KRAMER inoperable because such modification would not permit the sheet-like material to pass over the rollers and through the gas jet nozzle section.

Therefore, Applicant submits that because KRAMER would be rendered inoperable, the combination of KRAMER with the above-mentioned references is improper.

3. *Applicant's Disclosure May Not be Used As Template for Rejection, and the Combination is Improper*

As discussed above, it appears that the Examiner has used unacceptable hindsight reconstruction to generate the aforementioned 35 U.S.C. §103(a) rejection over DE in view of COFER or YOSHIOKA and in further view of KRAMER.

As discussed, Applicant respectfully submits that the above-mentioned references are completely devoid of any teaching or suggestion to combine the continuous casting method of DE with a strip temperature regulation device that maintains the temperature of the strip uniform along its length and that further includes at least one panel with means for varying the inclination with respect to the vertical strip casting plane. Further, the proposed combination is improper because it destroys the function and principle operation of KRAMER. Therefore, Applicant respectfully submits that the proposed combination is a result of impermissible hindsight.

Accordingly, the Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of Claims 4, 8 and 10 under 35 U.S.C. §103(a) and indicate that these claims are allowable over the art of record.

New Claims 11-20

Applicant also submits new Claims 11-20 for consideration. These claims have been provided to claim subject matter disclosed in the Applicant's application. Applicant submits that such new claims do not necessitate any further searching and believes that these new claims are allowable over the art of record.

Application is Allowable

Applicant respectfully submits that Claims 1-6 and 8-20 of the present application meet the requirements for patentability under 35 U.S.C. § 103(a), and respectfully requests the Examiner to indicate allowance of the same.

CONCLUSION

In view of the above amendments and remarks, Applicant respectfully requests allowance of the above-identified application. Should the Examiner have any questions or suggestions for expediting the allowance of the applicant, the Examiner is invited to contact Applicant's undersigned representative at the number listed below.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 2/16/06 By: _____

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